CLAIMS

What is claimed is:

1. An apparatus, comprising:

a printed circuit board (PCB), including,

at least one set of integrated circuit (IC) pads, each set of IC pads to electrically couple one of an IC or a socket configured to receive an IC to the PCB; and

a set of power supply pads to electrically couple one of a power module, power supply circuitry, or connector configured to receive a power module to the PCB; and

first and second power rails, each mounted to the PCB and electrically coupled to a portion of the power supply pads and a portion of said at least one set of IC pads, wherein the first and second power rails are respectively disposed on opposite sides of said at least one set of IC pads and each power rail has a slotted profile including at least one slot configured to receive a flange on a heatsink.

2. The apparatus of claim 1, further comprising:

a first IC, coupled to a first set of IC pads; and

a first heatsink, having a flange slidingly engaged with a respective slot in each of the first and second power rails.

3. The apparatus of claim 2, further comprising:

means for thermally coupling the first heatsink to the first IC.

4. The apparatus of claim 2, wherein the first and second power rails are to carry different voltages, and the apparatus further comprises:

means for electrically isolating the first heatsink from at least one of the first and second power rails while thermally coupling the first heatsink to said at least one of the first and second power rails

5. The apparatus of claim 4, wherein said means for electrically isolating the first heatsink from at least one of the first and second power rails comprises a thermally conduction non-electrically conductive coating applied to at least one of an area proximate to a slot in at least one of the first and second power rails and to an area proximate to the flanges of the first heatsink.

6. The apparatus of claim 1, further comprising:

a second IC, coupled to a second set of IC pads; and

a second heatsink, having a flange slidingly engaged with a respective slot in each of the first and second power rails.

7. The apparatus of claim 1, further comprising:

a first IC socket, coupled to a first set of IC pads;

a first IC, coupled to the first IC socket; and

a first heatsink, having a flange slidingly engaged with a respective slot in each of the first and second power rails.

8. The apparatus of claim 7, further comprising:

a second IC socket, coupled to a second set of IC pads;

a second IC, coupled to the second IC socket; and

a second heatsink, having a flange slidingly engaged with a respective slot in each of the first and second power rails.

9. The apparatus of claim 8, further comprising a third heatsink disposed toward a top end of the power rails and having a flange slidingly engaged with a respective slot in each of the first and second power rails.

10. The apparatus of claim 1, wherein each of the first and second power rails has a profile including a plurality of slots disposed at different heights relative to a base of the profile.

11. The apparatus of claim 1, wherein at least one of the first and second power rails includes an embedded heat pipe, including a cavity in which a wicking material and working fluid is disposed.

12. The apparatus of claim 1, further comprising a pair of elongated pads formed on a top layer of the PCB, wherein a base of each of the first and second power rails is electrically-coupled to a respective elongated pad.

13. The apparatus of claim 1, further comprising power supply circuitry coupled to the PCB via the set of power supply pads.

14. The apparatus of claim 1, further comprising a power module connector coupled to the PCB via the set of power supply pads.

15. The apparatus of claim 1, wherein the apparatus comprises one of a telecommunications equipment board or computer equipment board.

16. The apparatus of claim 15, wherein the telecommunications equipment board comprises an ATCA (Advanced Telecommunications Architecture) Front Board.

17. The apparatus of claim 1, wherein at least one of the first and second power rails comprises a split power rail including first and second conductive sections separated by an insulator section.

18. The apparatus of claim 1, further comprising an elongated heat sink running substantially the length of the first and second power rails and having flanges on opposing sides slidingly engaging respective slots in the first and second power rails.

19. An apparatus, comprising:

a printed circuit board (PCB), including,

power supply means;

a first integrated circuit (IC); and

first and second power rails, respectively disposed on opposite sides of the first integrated circuits, each power rail having a slotted profile including at least one slot configured to receive a flange on a heatsink;

means for electrically coupling power outputs from the power supply means to each of the first and second power rails;

means for electrically coupling each of the first and second power rails to the first IC; and

means for coupling the first and second power rails to the PCB.

20. The apparatus of claim 19, further comprising:

a first heatsink, having flanges on opposing sides slidingly respectively engaging slots defined in each of the first and second power rails and disposed proximate to the first IC; and

means for securing the first heatsink to the first and second power rails.

21. The apparatus of claim 20, further comprising:

means for thermally coupling the first IC to the first heatsink.

22. The apparatus of claim 20, further comprising:

means for thermally coupling at least one of the first and second power rails to the first heatsink while electrically insulating said at least one of the first and second power rails from the first heatsink.

23. The apparatus of claim 20, further comprising:

a second IC, disposed between the first and second power rails;

a second heatsink, having flanges on opposing sides slidingly engaging the respective slots defined in the first and second power rails and disposed proximate to the second IC; and

means for securing the second heatsink to the first and second power rails.

24. The apparatus of claim 19, wherein at least one of the first and second power rails comprises a split power rail including first and second conductive sections separated by an insulator section, the apparatus further comprising:

means for electrically coupling power outputs from the power supply means to each of the first and second conductive sections of each split power rail;

means for electrically coupling each of the first and second conductive sections of each split power rail to the first IC.

25. A method, comprising:

routing power to a first integrated circuit (IC) on a printed circuit board (PCB) via first and second power rails coupled to the PCB and disposed on opposite sides of the first IC; and

thermally coupling a first heatsink to the first IC by slidingly engaging flanges on opposing sides of the first heatsink with respective slots defined in the first and second power rails.

26. The method of claim 25, further comprising:

routing power to a second integrated circuit (IC) on the PCB via the first and second power rails; and

thermally coupling one of the first heatsink or a second heatsink to the second IC by slidingly engaging flanges on opposing sides of the first heatsink or second heatsink with slots defined in the first and second power rails.

27. The method of claim 25, further comprising:

providing power having different voltage levels to the first IC via the first and second power rails; and

electrically insulating at least one of the first and second power rails from the first heatsink while thermally coupling said one of the first and second power rails to the first heatsink.

28. The method of claim 25, further comprising:

configuring at least one of the first and second power rails to operate as a heat pipe.

29. The method of claim 25, further comprising:

routing a first power output provided by a power supply coupled to the PCB to the first power rail; and

routing a second power output provided by the power supply to the second power rail.

30. The method of claim 29, wherein the first power output is a supply voltage to the IC and the second power output comprises a ground.